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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,115	09/29/2006	Yoshiaki Nagara	5000-5263	2425

27123 7590 06/26/2008

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EXAMINER	
HOLLWEG, THOMAS A	

ART UNIT	PAPER NUMBER
2879	

NOTIFICATION DATE	DELIVERY MODE
06/26/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/534,115	NAGARA ET AL.	
	Examiner	Art Unit	
	Thomas A. Hollweg	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 May 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/5/2005, 1/8/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Preliminary Amendment

1. Applicant's preliminary amendment, received May 5, 2005, is acknowledged. Claims 1-12 are amended, claims 13-20 are added. Currently clams 1-20 are pending.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on May 5, 2005, and January 8, 2007 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

3. The following claims are objected to because of the following informalities:

a. Claims 5, 7 and 8, the phrase "wherein that wherein" is awkward. Appropriate correction is required.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the electron transport layer having a first layer including the first organic compound and a second layer including the second organic compound, of claims 10 and 18, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al., U.S. Patent No. 6,566,807 B1, in view of Uchida et al., U.S. Patent No. 6,376,694 B1.

8. With regard to claim 1, in figure 3, Fujita discloses an organic electroluminescent device comprising a pair of electrodes (2, 8) and a plurality of organic compound layers (7, 5, 4, 31), which include an electron transport layer (7), provided between the pair of electrodes (2, 8), the electron transport layer (7) including at least a first organic

compound (17) and a second organic compound (not separately labeled) (col. 7, lines 3-12, col. 12-49). Fujita further discloses that second organic compound is Alq3 that is doped with the first organic compound (col. 24, line 42 – col. 26, line 50).

9. Fujita does not expressly disclose that the first organic compound is a silole derivative. Uchida teaches a silole derivative compound that may be applied to functional materials in an organic EL display to improve efficiency and longevity of the display (col. 2, line 30 – col. 3, line 67). Uchida further teaches that the silole derivative can be added to an electron transport layer to take advantage of the electric properties of the silole ring (col. 7, lines 10-26).

10. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Fujita organic electroluminescent device where the first organic compound is the silole derivative, taught by Uchida, to improve the efficiency and longevity of the device. In this modified device the first organic compound possesses a higher electron mobility than the second organic compound; and the second organic compound possesses a higher glass transition temperature than the first organic compound.

11. With regard to claim 2, in figure 3, Fujita discloses an organic electroluminescent device comprising a pair of electrodes (2, 8) and a plurality of organic compound layers (7, 5, 4, 31), which include an electron transport layer (7), provided between the pair of electrodes (2, 8), the electron transport layer (7) including at least a first organic compound (17) and a second organic compound (not separately labeled) (col. 7, lines

3-12, col. 12-49). Fujita further discloses that second organic compound is Alq3 that is doped with the first organic compound (col. 24, line 42 – col. 26, line 50).

12. Fujita does not expressly disclose that the first organic compound is a silole derivative. Uchida teaches a silole derivative compound that may be applied to functional materials in an organic EL display to improve efficiency and longevity of the display (col. 2, line 30 – col. 3, line 67). Uchida further teaches that the silole derivative can be added to an electron transport layer to take advantage of the electric properties of the silole ring (col. 7, lines 10-26).

13. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Fujita organic electroluminescent device where the first organic compound is the silole derivative, taught by Uchida, to improve the efficiency and longevity of the device. In this modified device the first organic compound possesses a higher electron mobility than the second organic compound; and the first and second organic compounds are selected so that a second organic electroluminescent device has a longer initial luminance half-life than a first organic electroluminescent device, provided that the first organic electroluminescent device has an electron transport layer formed only of the first organic compound, and the second organic electroluminescent device has an electron transport layer formed only of the second organic compound.

14. With regard to claim 3, the modified Fujita and Uchida organic electroluminescent device of claim 1 discloses that the first organic compound is a silole derivative (Uchida, col. 2, line 30 – col. 3, line 67).

15. With regard to claim 4, the modified Fujita and Uchida organic electroluminescent device of claim 1 discloses that the first organic compound has a molecular weight of 400 or more (Uchida, col. 2, line 30 – col. 3, line 67).

16. With regard to claim 5, the modified Fujita and Uchida organic electroluminescent device of claim 1 discloses that the second organic compound is a metal complex (Fujita, col. 24, line 42 – col. 26, line 50).

17. With regard to claim 5, the modified Fujita and Uchida organic electroluminescent device of claim 1 discloses that the second organic compound is a quinolinolate metal complex (Fujita, col. 24, line 42 – col. 26, line 50).

18. With regard to claim 7, the modified Fujita and Uchida organic electroluminescent device of claim 1 discloses that the first organic compound is from 1% or more to 50% or less by weight of the total weight of the electron transport layer (Fujita, col. 24, line 42 – col. 26, line 50).

19. With regard to claim 8, the modified Fujita and Uchida organic electroluminescent device of claim 1 discloses that the first and second organic compounds are mixed in the electron transport layer (Fujita, col. 24, line 42 – col. 26, line 50).

20. With regard to claim 9, the claim limitation “formed by co-deposition of the first and second organic compounds” is drawn to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation has been considered, but not patentably

distinct over Fujita and Uchida (see MPEP 2113). Examiner notes that the modified Fujita and Uchida organic electroluminescent device of claim 8 discloses that the electron transport layer is formed by co-deposition of the first and second organic compounds (Fujita, col. 24, line 42 – col. 26, line 50).

21. With regard to claim 10, the modified Fujita and Uchida organic electroluminescent device of claim 1 discloses that the electron transport layer has a first layer (71) including the first organic compound (17) and a second layer (7) including the second organic compound (not separately labeled) (best shown in Fujita figure 6, col. 11, lines 25-40).

22. With regard to claim 11, the modified Fujita and Uchida organic electroluminescent device of claim 1 discloses that the electron transport layer has a thickness of from 5 to 100 nm (Fujita, col. 24, line 42 – col. 26, line 50).

23. With regard to claim 12, the modified Fujita and Uchida organic electroluminescent device of claim 1 discloses that a hole injection layer (3), a hole transport layer (31) and a light-emitting layer (52) are further provided between the pair of electrodes (2, 8) as the organic compound layer (best shown in Fujita figure 12, col. 13, lines 17-55).

24. With regard to claim 13, the modified Fujita and Uchida organic electroluminescent device of claim 2 discloses that the first organic compound is a silole derivative (Uchida, col. 2, line 30 – col. 3, line 67).

25. With regard to claim 14, the modified Fujita and Uchida organic electroluminescent device of claim 2 discloses that the first organic compound has a molecular weight of 400 or more (Uchida, col. 2, line 30 – col. 3, line 67).

26. With regard to claim 15, the modified Fujita and Uchida organic electroluminescent device of claim 2 discloses that the second organic compound is a metal complex (Fujita, col. 24, line 42 – col. 26, line 50).

27. With regard to claim 16, the modified Fujita and Uchida organic electroluminescent device of claim 2 discloses that the first organic compound is from 1% or more to 50% or less by weight of the total weight of the electron transport layer (Fujita, col. 24, line 42 – col. 26, line 50).

28. With regard to claim 17, the modified Fujita and Uchida organic electroluminescent device of claim 2 discloses that the first and second organic compounds are mixed in the electron transport layer (Fujita, col. 24, line 42 – col. 26, line 50).

29. With regard to claim 18, the modified Fujita and Uchida organic electroluminescent device of claim 2 discloses that the electron transport layer has a first layer (71) including the first organic compound (17) and a second layer (7) including the second organic compound (not separately labeled) (best shown in Fujita figure 6, col. 11, lines 25-40).

30. With regard to claim 19, the modified Fujita and Uchida organic electroluminescent device of claim 2 discloses that the electron transport layer has a thickness of from 5 to 100 nm (Fujita, col. 24, line 42 – col. 26, line 50).

31. With regard to claim 20, the modified Fujita and Uchida organic electroluminescent device of claim 2 discloses that a hole injection layer (3), a hole transport layer (31) and a light-emitting layer (52) are further provided between the pair of electrodes (2, 8) as the organic compound layer (best shown in Fujita figure 12, col. 13, lines 17-55).

Conclusion

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Hollweg whose telephone number is (571) 270-1739. The examiner can normally be reached on Monday through Friday 7:30am-5:00pm E.S.T..

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

34. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TH/

/Nimeshkumar Patel/
Supervisory Patent Examiner, Art Unit 2879